

S E C R E T

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DCI/IC 73-0901
16 August 1973

MEMORANDUM FOR:

SUBJECT : IC Secure Text Editing System Study

1. Introduction. This study, to develop an Intelligence Community Secure Text Editing System, was conducted during the past several months. It was undertaken based on the premise that the DCI would like to improve the coordination process and cycle time during periods of crises or increased tensions around the world. The system would also be used for daily coordination of other intelligence community documents. There are two basic benefits that can be obtained by achieving this capability; i.e.; (a) an improvement in the coordination process and cycle time, and (b) an improvement in this communications media will assist in bringing the intelligence community closer together. To accomplish this we have examined the use of text editing equipment interconnected via secure communication lines at each key location. In addition a secure voice conference capability, for a limited number of subscribers, would augment the CRT text editing systems. The system is to be engineered so that it can be expandable in numbers of CRTs as well as capable of being connected to computers using teleprocessing techniques.

Attachment A is a list of the key IC people that assisted with the study. The cooperation of all of the other members of the intelligence community (i.e., CIA, State, DIA, NSA), as well as White House Situation Room and JCS personnel has been excellent. In particular assistance from Mr. William Eisner, OJCS, and Mr. Jay Watkins, FMSAC, was very helpful.

During this investigation period discussions and related internal plans at each agency/department, as well as future plans for COINS/IDHS/WWMCCS networks, have been reviewed and our concept is compatible with these programs.

2. Text Editing Communications Net. We have been investigating the need for and technical approaches that can be taken to improve by expediting, and therefore in some instances provide inputs not otherwise possible within defined time constraints,

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coordination of action memoranda among members of the intelligence community during crises or periods of increased tensions. We have also considered the use of this text editing capability for daily coordination of CIBs, NIEs, SNIEs, Watch Officer Bulletins, W.O. Summaries or other time urgent memoranda/position papers.

Three different technical approaches for the text editing system have been examined. They are: (a) a stand-alone, essentially point-to-point system; (b) use of a large centralized computer [redacted] system; and (c) a small stand-alone computer system--expandable in the number of terminals that can be connected, flexible in that it can be tied to other host computers in a network in the future and with a growth capability to assist the analyst with his job.

The stand-alone terminals (approach a) are relatively expensive (some as high as \$18,000 each) and lacking in capabilities. Some systems do not have a communications interface or a CRT display or both. The systems considered do not operate in a broadcast or conference mode. This capability would have to be engineered for the standalone system. The record keeping will have to be handled manually and the mode of operation would probably, in many cases, be handled with a hard copy rather than a soft copy (CRT) display since the transmission would be controlled by the sender and there would be limited storage available. In addition the system would not have a growth potential of being able to interface with other host computers and computer networks without additional engineering. An interface with a photo-composition printer would be limited and would require some engineering. There would be a limited possibility of providing an analyst storage and retrieval manipulation capability which is also dependent upon engineering changes.

Using an existing large CPU system--approach b--(e.g., [redacted] causes a multi-level computer security problem. This problem would exist within the parent organization as well as within this sensitive intelligence community text editing net; i.e., the misrouting of a sensitive paper from the DCI for the White House could be extremely serious. Adding a text editing applications software package to an existing system impacts on the capacity and throughput of the existing system and the converse is also true. This approach will also limit the expansion of the system in that it is dependent upon the capacity of the host system and, therefore, changes to this system could impact the host system. This in turn also limits the evolutionary growth which will permit the analysts to perform other related functions using the text editing terminal. In addition some of the computer centers, although operating 24 hours per day, do not operate their time sharing systems 24 hours per day which is required for the text editing system as presently envisioned.

Approach c is preferred.

Growth capabilities for the Text Editing Communications Net would include: (a) file manipulation, to include, for example, some of the features on Dough Englebart's SRI system, (b) an ability to connect to the CIA host computer, and (c) an ability to connect to the IDHS, WWMCCS and COINS networks for file storage and retrieval. The concept proposed is also expandable, on an evolutionary basis, for providing a remote job entry station (batch processing) at each location for general computer processing as required.

The system considered has been sized to have two CRT (Cathode Ray Tubes) and a printer (selectric typewriter) at each of six locations. They are: CIA (also for use by DCI), NSA, State, DIA, JCS and WHSR. Based upon requirements the WHSR terminal could be a receive only terminal. An individual at each location would be able to type a document and have it displayed on his CRT. He will be able to insert characters, words, sentences, paragraphs and pages as well as delete the same. The system will automatically align all words along the left margin (left justify). As appropriate the words would move from line to line (line wrap-around) so that no spaces would be left on a line. The system would not hyphenate words on the right hand margin (although this is a growth capability) but would look like this typed page. He will also be able to transpose characters, words, sentences, paragraphs and pages. When his document is complete he will have the ability to transmit it to one or up to five other locations. One mode of operation would be to display, for example, an input from State on the DCI's (CIA) CRT. If the DCI is preparing a consolidated paper the action officer would be able to scan through the input paper and extract sentences, paragraphs, pages, etc., and display it on the second CRT where he would prepare his consolidated position paper. The action officer would be able to ripple through all of the other inputs as appropriate (DIA, CIA, NSA, JCS) and perform the same function. He would also be able to recompose, add, delete and transpose. When the DCI is satisfied, his version can be transmitted to one or all of the input locations. Using the analysts' secure voice conferencing net, the action officers would be able to discuss the action paper and make changes using the CRT. When concurrence has been reached, a hard copy can be printed at each location and a final version transmitted to the WHSR. In addition each of the terminals could be used independently to perform text editing.

The system has been sized so that each terminal could store approximately ten documents, single spaced, approximately ten pages in length. Archival storage could be made on a computer tape; however, it has been considered that archival storage would be the hard copy and that the system would only provide temporary storage.

An interface with a Magnetic Tape Selectric Typewriter (MTST) and a communicating Magnetic Card Selectric Typewriter (MCST) will be options for the system. This will permit another office to prepare a position paper on their own MTST/MCST. Instead of retyping the paper for transmission-coordination purposes, it will be possible to input the mag tape/card to the text editing system and display the text on the CRT. The paper could then be transmitted to another location. An ability to directly interface with the PSD photo-composition system or to provide tapes for large volume printing will also be an option to the system. An interface with an Optical Character Recognition-page reading system will also be an option. This would permit inputs to the system from hard copies prepared on IBM selectric typewriters by other offices--another time saving feature.


Attachment B is a list of equipments and companies surveyed for this text editing capability. Many visits were made to contractors' facilities for demonstrations and discussions. In addition numerous briefings and discussions were held in Headquarters with contractor personnel. There are a number of systems available primarily in the printing services--publishing and newspapers--fields that are very close to the type system proposed. One approach using a PDP-11/45 and Delta Data displays is particularly attractive from a cost standpoint, as well as being developed by RADC for use in a DIA indications and warning analysts' net. I understand that the Army (Project ASSIST), Navy and AF plan to procure PDP-11/45's and use them for the I&W net as well as to interface them with the Intelligence Data Handling System (IDHS) and the World-Wide Military Command and Control (WWMCCS). This, of course, fits in with the growth objectives for this system. Furthermore, I understand that OJCS will use PDP-11/45's to control their Mass Memory system. In addition there are other DEC equipments in Headquarters (PDP 11s & PDP 15). Other systems seriously considered were the IBM 370-125, and the CDC 1774 or 1784.

3. Recommendation: It is recommended that the Data-Logics Inc. system be procured for the IC Text Editing Communications Net. Delivery can be made nine months after receipt of the contract. It is recommended that the IC Staff fund for this system--arrangements would be made to have DEC maintain the equipment per discussions with Data-Logics and DEC personnel. The equipment could be leased; however, since the equipment is either being used or it is planned to use the equipment elsewhere (NSA - OMNIBUS, CIA - Mass Memory, DIA - I&W Net, Army, Navy and AF - I&W Net and IDHS front end processor) it is recommended that we purchase the equipment. The CPU and peripherals will cost about

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\$80,000. Twelve Delta Data 5200 CRT displays will cost approximately \$60,000. Software costs plus additional printers are estimated at \$60,000 or a total system cost of \$200,000. In addition there will be additional communication (cryptos, modems and multiplexers and leased lines) costs. This is estimated at \$50,000 excluding crypto equipment which is not chargeable. The leased line costs are estimated at \$5,000 per year or about \$420/mo. Each of the IC agencies should fund for their own communications lines to CIA Headquarters and any equipments leased for their installation. The CPU equipment should be installed in CIA Headquarters and the Office of Joint Computer Support should be assigned to oversee development, installation and to operate and maintain the system. Terminals would be installed at each IC location and connected to the CPU via 2400 B/SEC lines (normal voice grade circuits). The CIA Office of Communications should be tasked with the assignment of working with OJCS to coordinate the communications circuits required at each agency.

An IC User Task Force should be convened to review and prepare an operational concept for this system. The membership to include the IC Staff, CIA, State, DIA, NSA and others as appropriate.


Chief, IHC Support Staff

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Attachment A to
DCI/IC 73-0901

IC Staff principals assisting with the Text Editing
System Study:



* Temporarily assigned by the Office of Communications